Abstract

The present invention includes a method of wirelessly transmitting data between a base station and a plurality of users. The method includes determining a transmission link quality between a user and the base station. A class type is assigned to the user based upon the transmission link quality. A channelization mode is set for transmission with the user based upon the class type. The channelization mode can be used to determine a quantity of frequency spectrum allocated for transmission between the user and the base station. Further, the quantity of frequency spectrum allocated can be for the duration of a particular transmission time slot. The allocated frequency spectrum can include contiguous frequency slots or non-contiguous frequency slots. The frequency slots can include multi-carrier or single carrier signals. The invention can also include communicating the class type of the user to a media access controller (MAC) scheduler. The MAC scheduler schedules all transmission between the base station and the user by assigning transmission frequency slots and transmission time slots to the user, wherein a number of frequency slots assigned to the user per time slot is based on the class type of the user. The number of frequency slots assigned to the user per time slot can be further based on real-time system traffic load between the base station and the plurality of users. The number of frequency slots assigned to the user per time slot can be further based on a quality of service associated with the user.